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March 18, 2008



Mark B. Quatt Registration No. 30,484

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: McAllister et al.

Docket No: D-43656-01

Serial No.: 10/648,027

Examiner: Ahmed, Sheeba

Filing Date: August 26, 2003

GAU: 1794

Title: Polymeric Film With Low Blocking And High Slip Properties

APPEAL BRIEF

Commissioner for Patents
Alexandria, VA 22313-1450

03/20/2008 SDENB0B3 00000029 071765 10648027

Dear Sir:

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This Appeal Brief is being filed in support of a Notice of Appeal filed on December 12, 2007. A Pre-Appeal Brief Request For Review was simultaneously filed. A Notice of Panel Decision from Pre-Appeal Brief Review was mailed February 25, 2008, in which the Panel indicated "Proceed to Board of Patent Appeals and Interferences".

The Commissioner is authorized to charge the fee of \$510 for filing an appeal Brief, to Deposit Account No. 07-1765; and is authorized to charge any additional fees that may be required or credit any overpayment to Deposit Account No. 07-1765.

Respectfully submitted,



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date

Real Party in Interest

The real party in interest in this patent application is Cryovac, Inc.

Related Appeals and Interferences

There are no other appeals or interferences known to applicants, the applicants' legal representative, or assignee that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

The claims now on appeal are claims 7, 8, 10 to 15, 17 to 22, 26 and 27.

Original claims 1 to 20 were rejected in an Office Action mailed July 25, 2005.

By amendment of September 30, 2005, claims 1 to 6 were canceled.

Claims 7 to 20 were rejected in a non-final Office Action mailed December 28, 2005.

Applicants thereafter filed an amendment of April 25, 2006, in which independent claims 7 and 14 were amended, claims 9 and 16 were canceled, and claims 21 to 23 were added.

Claims 7 to 8, 10 to 15, and 17 to 23, as amended, were rejected in the Final Office Action mailed July 12, 2006. [Note that claim 9 was also rejected, but this claim had already been canceled in the amendment of April 25, 2006].

Applicants thereafter filed an RCE on December 13, 2006, along with a Preliminary Amendment in which independent claims 7 and 14 were further amended, claim 23 was canceled, and claim 24 to 25 were added.

Claims 7 to 14, 17 to 22, 24 and 25 were then rejected in the non-final Office Action mailed March 22, 2007. [Claim 9 was also rejected, but again, this claim had already been canceled in the amendment of April 25, 2006].

Applicants thereafter filed an amendment of June 11, 2007, in which independent claims 7 and 14 were further amended, claims 24 and 25 were canceled, and claims 26 and 27 were added.

In the Final Office Action mailed September 10, 2007, claims 7, 8, 10 to 15, 17 to 22, 26 and 27 were rejected.

Applicants thereafter filed a Notice of Appeal on December 12, 2007. A Pre-Appeal Brief Request For Review was simultaneously filed.

A Notice of Panel Decision from Pre-Appeal Brief Review was mailed February 25, 2008, in which the Panel checked "Proceed to Board of Patent Appeals and Interferences" and indicated that there was at least one actual issue for appeal.

A copy of the claims presently on appeal appears in the Claims Appendix.

Status of Amendments

The claims now on appeal are claims 7, 8, 10 to 15, 17 to 22, 26 and 27.

These are the same claims that were rejected in the Final Office Action mailed September 10, 2007.

No amendments since that Office Action have been sought or entered.

A copy of the claims presently on appeal appears in the Claims Appendix.

Summary of Claimed Subject Matter

Concise Explanation of the subject matter of independent claim 7

A multilayer film (30) comprises

a first (32) and second (33) outer layer each comprising a polymer (page 11, lines 31 to 32);

a core layer (34) comprising a polymer (page 11, lines 32 to 33);

a first (35) and second (36) substrate layer each comprising a polymer (page 11, lines 33 to 34), the first and second substrate layers disposed between the core layer and the first and second outer layers respectively page (11, line 34 to page 12, line 1);

wherein each of

- i) the first substrate layer (35),
- ii) the second substrate layer (36),
- iii) the first outer layer (32), and
- iv) the second outer layer (33),

comprises primary fatty amidic wax (page 8, lines 30 to 32; page 9, lines 11 to 12; page 10, lines 20 to 21; and page 12, lines 6 to 8);

wherein the first outer layer (32) comprises primary fatty amidic wax in an amount of 15% to 50% of the amount of primary fatty amidic wax in the first substrate layer (35); and the second outer layer (33) comprises primary fatty amidic wax in an amount of 15% to 50% of the amount of primary fatty amidic wax in the second substrate layer (36) (page 10, lines 20 to 26);

wherein at least one of

- i) the first (32) and second (33) outer layers, and
- ii) the first (35) and second (36) substrate layers

comprises from 1,000 ppm to 5,000 ppm of a transition metal salt of stearic acid, or ester of stearic acid (page 9, lines 15 to 21; page 12, lines 31 to 33); and

wherein the first (35) and second (36) substrate layers each comprises from 4,000 ppm to 10,000 ppm of oleamide (page 19, Table 2).

Concise Explanation of the subject matter of independent claim 14

A multilayer film (40) comprises

a first (42) and second (43) outer layer each comprising a polymer (page 13, lines 1 to 2); and

a substrate layer (44) comprising a polymer (page 13, lines 3 to 4);

wherein each of

- i) the first outer layer (42),
- ii) the second outer layer (43), and
- iii) the substrate layer (44),

comprises a primary fatty amidic wax (page 8, lines 30 to 32; page 9, lines 22 to 26; page 13, lines 1 to 13);

wherein the first outer layer (42) comprises primary fatty amidic wax in an amount of 15% to 50% of the amount of primary fatty amidic wax in the substrate layer (44); and the second outer layer (43) comprises primary fatty amidic wax in an amount of 15% to 50% of the amount of primary fatty amidic wax in the substrate layer (44) (page 13, lines 7 to 9);

wherein at least one of

- i) the first (42) and second (43) outer layers, and
- ii) the substrate layer (44)

comprises from 1,000 ppm to 7,000 ppm of a transition metal salt of stearic acid, or ester of stearic acid (page 9, lines 22 to 26; page 13, lines 1 to 6; and page 14, lines 14 to 16); and

wherein the substrate layer (44) comprises from 4,000 ppm to 10,000 ppm of oleamide (page 28, Table 14).

Grounds of Rejection to be reviewed on appeal

The grounds of rejection to be reviewed on appeal (per the Office Action mailed September 10, 2007) is as follows:

1. Claims 7, 8, 10 to 15, 17 to 22, 26 and 27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Schoenberg (US 4,514,465) in view of Longmoore et al. (US 6,497,965) and Plume (US 6,846,863) and applicant's admissions.

Argument

Claims 7, 8, 10 to 15, 17 to 22, 26 and 27 are patentable under 35 U.S.C. §103(a) and not rendered obvious by Schoenberg (US 4,514,465) in view of Longmoore et al. (US 6,497,965) and Plume (US 6,846,863) and applicant's admissions.

The Technical Problem

Amide waxes have long been used as slip agents in the production of films.

Producers of polymeric film operate on the principle that the wax molecule is more mobile than the host polymer. Waxes migrate through a host polymer in solid state, leading to the wax diffusing to the surface of the film. The rate for surface migration is the “bloom rate”.

Film producers also operate on the principle that packaging applications typically require a film with a low coefficient of friction (COF), dictated by the need for the film to run properly on packaging equipment used by food processors. The resin choice for the surface layer of some films also requires heat seal properties. Some resins are tacky, and present a challenge for the development of adequate film surface properties such as COF or slip.

To help reduce this surface tackiness, antiblock agents are used. While they can reduce tackiness, they may not yield a high slip polymeric film.

Film is sometimes extruded in annular form, one or both edges of the film are slit, and the planar film is either wound or centerfolded. A forming cylinder is used to cast the molten polymer into an initial film thickness and diameter in the shape of a tube. The molten polymer is quenched as it travels over the cylinder, into a continuous length of precursor film tubing.

A problem encountered is that at the extrusion die, a significant amount of wax migrates to the surface of the just emerging tubing as the precursor film contacts film making equipment. If wax has been added to the host polymer in the extrusion process at a level to provide low enough COF and high enough slip properties needed in the final film, the equipment becomes covered in wax over time. The wax eventually breaks off or transfers to the tube in liquid form, resulting in anomalies in the final film. This can affect the commercial viability of the film, and at some level, the physical properties of the film can be compromised as well. Frequent cleaning of the equipment may be required, increasing the cost of film production.

A second problem is that amidic waxes often require a minimum of 24 hours to bloom to the film's outer surface to permit adequate processing on packaging equipment. When films are made, especially heat shrinkable films, the film is rolled up such that the interior winds near the film core can be under a relatively high tension. This tension can retard or prevent significant wax from blooming to the film surface after the film is wound into roll form, and can result in wax diffusion through several film layers, depleting wax concentration in some regions of the roll and buildup in other regions. This undermines consistent film performance from the beginning to the end of the roll. The level of wax on the film surface has been shown to be greater on the exterior winds of the roll than it is at the end of a roll nearest the core. This significantly affects the manner in which the film "tracks" on high-speed food packaging equipment. In some cases only portions of a roll of film may be utilized on packaging equipment, and the rest has undesirably "blocked", i.e. bonded together at film surfaces on the roll, resulting in significant roll footage waste.

The Solution offered by the Present Invention

Films of the invention having total amide wax levels of 10 to 15 $\mu\text{g}/\text{in}^2$ resulted in substantially consistent film performance from the top to the bottom of the roll. Openability, where a folded film separates well on opening bars of packaging equipment, was excellent, and film tracking through packaging equipment, without excessive wax buildup on the packaging equipment, was also substantially consistent throughout film rolls (see page 25 of the specification, lines 5 to 10).

Turning to the art references, on page 3 of the Office Action mailed September 10, 2007, at paragraph 2, it is indicated that

[Schoenberg] is silent regarding the use of slip agents in the intermediate layers in a higher amount than the surface layers.

Applicants respectfully submit that this statement, while true, unduly extends the teachings of Schoenberg. At column 17, lines 29 to 41 of the reference, it is stated in part that

[a]dditionally, these percentages may vary slightly as a result of the inclusion or application of additives to the **surface** layers such as the silicone mist discussed above or inclusion therein of agents such as slip, antioxidant and anti-block agents . . . A preferred slip agent is Erucamide (available from Humko Chemical under the tradename Kemamide E).

[emphasis mine]

Schoenberg also teaches, further down the same column, that

The general ranges for inclusion of these agents into the **surface** layers 4 and 5 . . . are as follows . . .

(2) Slip Agent:

1000-2000 ppm, preferably
1250-1750 more preferably
about 1500 ppm most preferably

[emphasis mine]

Applicants submit that these teachings are directed to the surface layers of Schoenberg's film.

To be sure, Schoenberg goes on to teach that additional layers and/or minor amounts of various additives of the types described above may be added to the film structure of the present invention as desired, but then qualifies this statement by saying "but care must be taken not to adversely affect the desired physical properties and other characteristics of the inventive film." It is therefore not clear which additives and which layers would be added. In any event, "Additional" in column 18, line 14 can not refer to the intermediate layers 2 and 3, since these have already been disclosed and discussed in detail at e.g. column 14, lines 47 to 59 of the reference.

Applicants respectfully submit that a fair reading of Schoenberg does not support a conclusion that slip agents are present in the intermediate layers at all, much less in a higher amount than the surface layers of the multilayer film of Schoenberg.

Plume teaches a composition that can include fatty acid amides (column 2, line 12) and antacids (column 2, line-28) such as calcium or zinc stearate (column 3, line 5). However, the composition of Plume et al. is for a screw cap for a bottle. No film, and importantly for purposes of the present case, no multilayer film, is taught. The calcium and zinc stearates are not taught as aids in controlling migration of a primary fatty acid amide, but simply as antacids. There is no disclosure in Plume that a calcium or zinc stearate, or for that matter any transition metal salt of stearic acid, or ester of stearic acid, would help control the bloom (migration) of primary fatty acid amides to the surface of a multilayer polymeric film. Thus, it would not have been obvious to the skilled artisan to utilize a transition metal salt of stearic acid, or an ester of stearic acid, in at least one of a first and second substrate layer, or a first and second

outer layer, of a multilayer film, to enhance the migration of primary fatty amidic wax from a substrate layer to a respective outer layer of a multilayer film.

Longmoore et al. teach away from the use of erucamide because of its volatility and the problem of plating on processing equipment, causing a clean-up problem (column 1, lines 32 to 37), and teach away from behenamide, in a surface layer intended for printing, because of its tendency to build up on the doctor blade of a rotogravure printing system (column 1, line 61 to column 2, line 9). Longmoore et al. propose the use of N,N'-bis-alkylene fatty acid amide in one of the surface layers of a film (column 2, lines 24 to 62). In contrast, the present claims are directed to recite a primary fatty amidic wax. N,N'-bis-alkylene fatty acid amide is not a primary fatty amidic wax. Longmoore et al. do not appear to teach a primary fatty amidic wax in each of the first substrate layer, second substrate layer, first outer layer, and second outer layer (cf. claim 7) or in each of the first outer layer, second outer layer, and substrate layer (cf. claim 14).

Longmoore et al. also state that with their invention, "the problem of vaporization encountered with erucamide and to a lesser extent with behenamide is eliminated" (column 5, lines 3 to 5).

In summary, none of the references shows the combination of transition metal salt of stearic acid, or ester of stearic acid with primary fatty amidic wax in a multilayer film. None of the references teaches the use of transition metal salt of stearic acid, or ester of stearic acid to enhance the migration of amidic waxes. The only reference to transition metal salt of stearic acid, or ester of stearic acid relied on in the Office Action is in Plume, and it is only in the context of a monolayer structure, and only associated with use as an antacid.

Applicants additionally point out that claims 7 and 14 as amended require that the first and second substrate layers (claim 7) or the substrate layer (claim 14) each comprise from 4,000 ppm to 10,000 ppm of oleamide. The Office Action points to no teaching of the use of oleamide as a primary fatty amidic wax in any of Schoenberg, Longmoore et al., or Plume, its use in the substrate layer of a multilayer film, or its use in the recited range.

Applicants submit that the cited references alone or in combination do not render obvious the claimed combination.

The Office action of September 10, 2007 states at page 4 that

While the applicants state that they have unexpected result for the claimed combination of materials, there is nothing on the record to show that this is the case.

Applicants disagree with this conclusion.

Independent claims 7 and 14 include among others the requirements that

- a first and second outer layer each comprises primary fatty amidic wax in an amount of 15% to 50% of the amount of primary fatty amidic wax in the respective substrate layer (claim 7); or that a first and second outer layer each comprises primary fatty amidic wax in an amount of 15% to 50% of the amount of primary fatty amidic wax in the substrate layer (claim 14);
- from 1,000 ppm to 5,000 ppm of a transition metal salt of stearic acid, or ester of stearic acid, is present in at least one of the first and second outer layers, and the first and second substrate layers (or substrate layer for claim 14); and
- the first and second substrate layers (claim 7) or the substrate layer (claim 14) each comprises from 4,000 ppm to 10,000 ppm of oleamide.

The benefit of the combination of these components in a single film is seen in Example 24 of Table 7. Example 24 was the same *in all relevant*

particulars as Example 23, but included 5,000 ppm glycerol monostearate in each of the substrate layers. The result (see Table 7) was that the first and second outer layers of the film of Example 24 each had an outside surface total amide coating of 14.3 micrograms/inch², compared with only 10.9 micrograms/inch² for Example 23. The significance of this difference? The higher amide surface coating provides a polymeric film that exhibits adequate film surface properties characterized by a low coefficient of friction (COF) and high slip. These properties are desirable for the film to run properly on packaging equipment used by food processors and other packagers, for example, on Vertical Form Fill Seal (VFFS) equipment.

Table 8 discloses Examples 25 and 26, that have outer layers comprising a primary fatty amidic wax in an amount of only 10% of the amount of primary fatty amidic wax in the respective substrate layers. Also, neither Example 25 nor Example 26 had any oleamide in the substrate layers. Example 27 did have 5,000 ppm of oleamide in each of the substrate layers, but had outer layers comprising a primary fatty amidic wax in an amount of only 5% of the amount of primary fatty amidic wax in the respective substrate layers. In contrast, in Example 28, the first and second outer layers comprised primary fatty amidic wax (erucamide and oleamide) in an amount of 19% (thus from 15% to 50%) of the amount of primary fatty amidic wax in the respective substrate layer; at least one of the first and second outer layers, and the first and second substrate layers comprised 2000 ppm zinc stearate; and the first and second substrate layers each comprised 8,000 ppm of oleamide. The result (see Table 8) was that the first and second outer layers of the film of Example 28 had an outside surface total amide coating of 15.8 micrograms/inch², compared with only 5.3, 8.3, and 4.2 micrograms/inch² respectively for Examples 25 to 27.

Table 9 discloses Examples 29 to 32, all falling within the amended claim language of claim 7. They each had a first and second outer layer each comprising primary fatty amidic wax in an amount of 15% to 50% of

the amount of primary fatty amidic wax in the respective substrate layer. The percentage values ranged from 17% (Example 30) to 22% (Example 31). Examples 29 to 32 each disclose either 2000 ppm or 2300 ppm zinc stearate (thus from 1,000 ppm to 5,000 ppm of a transition metal salt of stearic acid, or ester of stearic acid) in at least one of the first and second outer layers, and the first and second substrate layers. Finally, they each disclose first and second substrate layers each comprising either 8,000 ppm or 9200 ppm (thus from 4,000 ppm to 10,000 ppm) of oleamide. The result (see Table 9) was that the first and second outer layers of the films of Examples 29 to 32 had an outside surface total amide coating ranging from 10.0 to 15.4 micrograms/inch², again compared with only 5.3, 8.3, and 4.2 micrograms/inch² respectively for Examples 25 to 27.

The Office action states at page 4 that

[t]he applicants' showing is not commensurate in scope with the breath of their current claims,

and, at page 5 that

[i]t is unclear to the Examiner whether the above-described properties are unexpected and how they extend over the claimed range.

Applicants submit that a careful reading of the cited references does not disclose, nor lead the skilled artisan, to the unexpected results clearly demonstrated in the examples cited above from the specification; and that consideration of those results, and the claims as amended with the limitations outlined above, supports the conclusion that the claims are indeed commensurate in scope with the examples given above.

Applicants respectfully submit that the claims as presented are novel and unobviousness over the art of record, and ask the Board to reverse the finding of the Office Action of September 10, 2007, and to allow claims 7, 8, 10 to 15, 17 to 22, 26 and 27.

Claims Appendix

7. A multilayer film comprising:
 - a) a first and second outer layer each comprising a polymer;
 - b) a core layer comprising a polymer; and
 - c) a first and second substrate layer each comprising a polymer, the first and second substrate layers disposed between the core layer and the first and second outer layers respectively;
wherein each of
 - i) the first substrate layer,
 - ii) the second substrate layer,
 - iii) the first outer layer, and
 - iv) the second outer layer,
comprises primary fatty amidic wax;
wherein the first outer layer comprises primary fatty amidic wax in an amount of 15% to 50% of the amount of primary fatty amidic wax in the first substrate layer; and the second outer layer comprises primary fatty amidic wax in an amount of 15% to 50% of the amount of primary fatty amidic wax in the second substrate layer;
wherein at least one of
 - i) the first and second outer layers, and
 - ii) the first and second substrate layers
comprises from 1,000 ppm to 5,000 ppm of a transition metal salt of stearic acid, or ester of stearic acid; and
wherein the first and second substrate layers each comprises from 4,000 ppm to 10,000 ppm of oleamide.
8. The film of claim 7 wherein the first and outer layers, the core layer, and the first and second substrate layers, each comprises a polymer selected from the group consisting of:
 - a) ethylene/alpha olefin copolymer;

- b) ethylene/vinyl acetate copolymer;
 - c) ionomer resin;
 - d) ethylene/ acrylic or methacrylic acid copolymer;
 - e) ethylene/ acrylate or methacrylate copolymer; and
 - f) low density polyethylene.
10. The film of claim 7 wherein the transition metal salt of stearic acid comprises zinc stearate.
11. The film of claim 7 wherein the first and second outer layers each comprises an antiblock agent.
12. The film of claim 7 wherein the film exhibits an Elmendorf Tear value (ASTM D 1922-94A) of more than 25 grams per mil.
13. The film of claim 7 wherein the film is heat shrinkable.
14. A multilayer film comprising:
 - a) a first and second outer layer each comprising a polymer; and
 - b) a substrate layer comprising a polymer;wherein each of
 - i) the first outer layer,
 - ii) the second outer layer, and
 - iii) the substrate layer,comprises a primary fatty amidic wax;
wherein the first outer layer comprises primary fatty amidic wax in an amount of 15% to 50% of the amount of primary fatty amidic wax in the substrate layer; and the second outer layer comprises primary fatty amidic wax in an amount of 15% to 50% of the amount of primary fatty amidic wax in the substrate layer;
wherein at least one of

- i) the first and second outer layers, and
 - ii) the substrate layer
- comprises from 1,000 ppm to 7,000 ppm of a transition metal salt of stearic acid, or ester of stearic acid; and
- wherein the substrate layer comprises from 4,000 ppm to 10,000 ppm of oleamide.
15. The film of claim 14 wherein the first and outer layers, and the substrate layer, each comprises a polymer selected from the group consisting of:
- a) ethylene/alpha olefin copolymer;
 - b) ethylene/vinyl acetate copolymer;
 - c) ionomer resin;
 - d) ethylene/ acrylic or methacrylic acid copolymer;
 - e) ethylene/ acrylate or methacrylate copolymer; and
 - f) low density polyethylene.
17. The film of claim 14 wherein the transition metal salt of stearic acid comprises zinc stearate.
18. The film of claim 14 wherein the first and second outer layers each comprises an antiblock agent.
19. The film of claim 14 wherein the film exhibits an Elmendorf Tear value (ASTM D 1922-94A) of more than 25 grams per mil.
20. The film of claim 14 wherein the film is heat shrinkable.
21. The film of claim 7 wherein both the first and second outer layers, and the first and second substrate layers, comprise a transition metal salt of stearic acid, or ester of stearic acid.

22. The film of claim 14 wherein both the first and second outer layers, and the substrate layer, comprise a transition metal salt of stearic acid, or ester of stearic acid.
26. The film of claim 7 wherein the first and second outer layers each comprises from 3,000 ppm to 6,000 ppm of primary fatty amidic wax.
27. The film of claim 14 wherein the first and second outer layers each comprises from 3,000 ppm to 6,000 ppm of primary fatty amidic wax.

Evidence Appendix

No evidence described in 37 CFR §41.37(ix) was submitted by applicants or entered by the Examiner.

Related Proceedings Appendix

There are no other appeals, interferences or judicial proceedings known to applicants , applicants ' legal representative, or Assignee which may be related to, directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.